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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/823,654  
Filing Date: April 14, 2004  
Appellant(s): TERADA ET AL.

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Keiko K. Takagi  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed on January 28, 2011 appealing from the Office action mailed on June 29, 2010.

**(1) Real Party in Interest**

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The following is a list of claims that are rejected and pending in the application: claims 5, 8, 9, 20 and 23.

**(4) Status of Amendments After Final**

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

**(5) Summary of Claimed Subject Matter**

The examiner has no comment on the summary of claimed subject matter contained in the brief.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the

subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

**(7) Claims Appendix**

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

**(8) Evidence Relied Upon**

WO 03/052045	TERADA et al.	06-2003
WO 02/05975	NAMIKAWA et al.	01-2002
7,575,790	TERADA et al.	08-2009

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

9.1. Claims 5, 8-9, 20 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terada et al. (WO 03/052045), hereinafter "Terada" in view of Namikawa et al. (WO 02/05975), hereinafter "Namikawa".

Terada teaches a cleaning label which comprises a cleaning layer **3** and a release film **4** provided on one side of a backing **2** (reads on the "support") and an ordinary adhesive layer **5** provided on the other side of the backing **2** and is peelably provided on the separator **1** with this adhesive layer **5** interposed therebetween; and in operation, the cleaning label is peeled off the separator **1**, and then stuck to a conveying member such as semiconductor wafer (see page 29, lines 9-23, Figures 1 and 2). The cleaning layer is not specifically limited in its material, however, a material which has cured by an activation energy source such as ultraviolet rays and heat to have a three-

dimensionally networked molecular structure that gives a lowered adhesion is preferably used, for example, the 180° peel adhesion with respect to silicon wafer is 0.20 N/10 mm or less (see page 19, line 24 to page 20, line 8; page 27, lines 13-16). The tensile modulus of the cleaning layer is 10 MPa or more (see page 20, line 25 to page 21, line 3; page 31, lines 6-9). The cleaning layer comprises a compound having one or more unsaturated double bonds per molecule incorporated in a pressure-sensitive adhesive polymer is preferred (see page 21, lines 15-18). Example of such pressure-sensitive adhesive polymer is an acrylic polymer comprising as a monomer a (meth)acrylic acid and/or (meth)acrylic acid ester (see page 21, lines 19-22). The backing for the cleaning layer is not specifically limited (see page 24, lines 18-21). The release film (i.e., protective film) is treated with a silicone-based releasing agent and is laminated as a separator, wherein the amount of silicone attached to said cleaning layer when the separator is peeled off said cleaning layer is 0.005 g/m<sup>2</sup> or less as calculated in terms of polydimethylsiloxane (see page 6, line 19 to page 7, line 9; page 8, lines 13 to page 10, line 21). The release film to be used in the protection of the cleaning layer may be a film made of polyethylene, polypropylene, polybutene, polybutadiene or polymethylpentene (see page 27, lines 21-24), which has been release-treated with a silicone-based releasing agent, a long-chain alkyl-based releasing agent, a fluorine-based releasing agent, an aliphatic acid amide-based releasing agent or a silica-based releasing agent (see page 28, lines 4-8). Terada, however, fails to specifically disclose a cleaning layer comprising a polyimide resin, wherein each of the relative intensities of the recited

fragment ions in the cleaning layer, when the protective film is peeled off the cleaning layer, is 0.1 or less.

Namikawa, an analogous art, teaches that a cleaning layer is not particularly limited, and as particular examples, in addition to the material obtained by causing the compound, that has one unsaturated double bond or more in the molecule, to contain into the pressure-sensitive adhesive polymer, there may be employed preferably rubbers, natural resins, synthetic resins such as polyethylene terephthalate, phenol resin, polyester resin, alkyd resin, epoxy resin, polycarbonate, cellulose nitrate, poly(vinylidene fluoride), polypropylene, polyimide, nylon 6, nylon 66, poly(methyl methacrylate), methyl methacrylate/styrene copolymer, ethylene fluoride/propylene copolymer, etc. (see page 5, line 19 to page 6, line 8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have substituted the cleaning layer comprising (meth)acrylic acid of Terada with a cleaning layer comprising polyimide resin because the substitution of art recognized equivalents as shown by Namikawa is within the level of ordinary skill in the art. In addition, simple substitution of one known element for another would achieve the predictable result of providing an effective cleaning layer which causes no contamination on the conveying site. In addition, it would also have been obvious to one of ordinary skill in the art at the time the invention was made to reasonably expect each of the relative intensities of the recited fragment ions in the cleaning layer, when the protective film is peeled off the cleaning layer, to be within those recited, i.e., 0.1 or less, because Terada teaches on page 6, line 19 to page 7, line 9; page 8, lines 13 to page

10, line 21 that the amount of silicone attached to said cleaning layer when the separator is peeled off said cleaning layer is  $0.005 \text{ g/m}^2$  or less, as calculated in terms of polydimethylsiloxane, hence, such amount would be equivalent to those recited.

9.2. Claims 5, 8-9, 20 and 23 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 14 of U.S. Patent No. 7,575,790 in view of Namikawa.

US '790 teaches a carrying member with a cleaning function, comprising a carrying member and a cleaning sheet as those recited except for the cleaning layer comprising polyimide resin, wherein each of the relative intensities of the recited fragment ions in the cleaning layer, when the protective film is peeled off the cleaning layer, is 0.1 or less.

Namikawa teaches the features as described above.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have prepared the cleaning layer of US '790 with a cleaning layer comprising polyimide resin because it is known from Namikawa that a cleaning layer in a similar product comprises polyimide resin which no contamination on the conveying site. In addition, it would also have been obvious to one of ordinary skill in the art at the time the invention was made to reasonably expect each of the relative intensities of the recited fragment ions in the cleaning layer, when the protective film is peeled off the cleaning layer, to be within those recited, i.e., 0.1 or less, because US '790, in claim 10 states that the amount of silicone attached to said cleaning layer when

the separator is peeled off said cleaning layer is  $0.005 \text{ g/m}^2$  or less, as calculated in terms of polydimethylsiloxane, hence, such amount would be equivalent to those recited.

## **(10) Response to Argument**

### **The Appellant Argues/Examiner's Response**

A. With respect to the obviousness rejection based upon Terada in view of Namikawa, Appellant argues that although Namikawa may mention the use of polyimide, among other materials, at page 5, line 19 to page 6, line 8, a person of ordinary skill in the art would not have been led to replace the cleaning layer comprising (meth)acrylic acid of Terada with a cleaning layer comprising polyimide resin. Appellant argues that Namikawa teaches the same problem as Terada and teaches the use of materials, such as acrylic polymers on page 11. Appellant also argues that Namikawa discloses that the  $180^\circ$  releasing adhesive force is not more than  $0.20 \text{ N/10 mm}$ , preferably about  $0.010$  to  $0.10 \text{ N/10 mm}$  (see page 10, lines 7-9), and as specific materials to achieve the desired adhesive force, Namikawa discloses the use of acrylic polymers that contain (meth)acrylic acid and/or (meth)acrylic ester (i.e., the same polymers used in Terada; see page 11, lines 3-7), however, there is no mention of the use of polyimide as a material suitable to obtain a releasing adhesive force in the desired range on pages 10-11. Appellant also argues that there is no disclosure in Namikawa that the use of polyimide provides a cleaning layer that exhibits a  $180^\circ$  peel adhesion of  $0.20 \text{ N/10 mm}$  or less.



The Examiner respectfully disagrees with the above arguments because even though Terada does not specifically disclose a cleaning layer comprising a polyimide resin, rather, a cleaning layer comprising an acrylic polymer comprising as a monomer a (meth)acrylic acid and/or (meth)acrylic acid ester (see page 21, lines 19-22), Namikawa, an analogous art, teaches on page 5, line 6 through page 6, line 8, that the material, design method, etc. of the cleaning layer is not particularly limited inasmuch as the relative dielectric constant is set within the range of 2.1 to 10. . . and as particular examples, in addition to the material obtained by causing the compound, that has one unsaturated double bond or more in the molecule, to contain into the pressure-sensitive adhesive polymer, there may be employed preferably rubbers, natural resins, synthetic resins such as polyethylene terephthalate, phenol resin, polyester resin, alkyd resin, epoxy resin, polycarbonate, cellulose nitrate, poly(vinylidene fluoride), polypropylene, polyimide, nylon 6, nylon 66, poly(methyl methacrylate), methyl methacrylate/styrene copolymer, ethylene fluoride/propylene copolymer, etc. Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have substituted the cleaning layer comprising (meth)acrylic acid of Terada with a cleaning layer comprising polyimide resin because the substitution of art recognized equivalents as shown by Namikawa is within the level of ordinary skill in the art. In addition, simple substitution of one known element for another would achieve the predictable result of providing an effective cleaning layer which causes no contamination on the conveying site. In the alternative, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated polyimide into the cleaning layer

of Terada because it is known from Namikawa that in addition to the recited pressure-sensitive polymers, there may be employed other polymers like polyimide so that foreign matters caused by static electricity can be caught and adsorbed as disclosed on page 5, line 6 to page 6, line 8.

With respect to the 180° peel adhesion in Namikawa, please note that Namikawa, on page 10, lines 7-12, teaches that the 180° releasing adhesive force for the silicon wafer is not more than 0.20 N/10mm, preferably about 0.010 to 0.10 N/10 mm, which overlap those recited in the present claims.

Appellant also argues that there is no recognition in Namikawa that polyimide and poly(methylmethacrylate) are "equivalents".

The Examiner respectfully disagrees with the above argument because it is clear from Namikawa, on page 5, line 6 through page 6, line 8, that polyimide and poly(methyl methacrylate) are functionally equivalents as cleaning layers.

Appellant also argues that the Examiner appears to take the position that if the amount of silicone attached to said cleaning layer when the separator is peeled off said cleaning layer is 0.005g/m<sup>2</sup> or less, as calculated in terms of polydimethylsiloxane, then the relative intensities of each of the recited fragment ions in the cleaning layer are 0.1 or less. However, the Examiner has not provided any technical reason as to why such would be the case or any correlation/connection between the two. Appellant also argues that Terada also does not disclose the use of polyimide, and Namikawa neither contains an Example where polyimide is used nor mentions silicone, and thus, it is submitted that one of ordinary skill in the art would not reasonably expect each of the relative

intensities of the recited fragment ions in the cleaning layer to be within the claimed ranges based on Terada and/or Namikawa.

The Examiner respectfully disagrees with the above arguments because on page 8, lines 13-20, Terada teaches that the first essence of the invention concerns a cleaning sheet comprising a cleaning layer and a protective film release-treated with a silicone-based releasing agent laminated as a separator on at least one side thereof, characterized in that the amount of silicone attached to said cleaning layer is  $0.005 \text{ g/m}^2$  or less as calculated in terms of polydimethylsiloxane. In other words, it is an objective of the invention of Terada that the cleaning sheet for use in the removal of foreign matters be composed of a cleaning layer which causes no contamination on the conveying site (see page 2, lines 22-25). It is also the objective of the invention of Terada to overcome the problem of the prior art, that is, when the separator is peeled off the cleaning layer during use, the release treatment such as silicone and wax moves to the cleaning layer, thus contaminating the conveying site (see page 3, lines 9-15). Hence, Terada has the same objective as the Appellant, that is, providing a cleaning member which causes little contamination of a substrate processing equipment due to the transfer of silicone to the cleaning layer when conveyed into the processing equipment to remove foreign matters from the interior of the device (see page 3, last two lines and page 4, lines 1-4 of the present specification). Terada, as stated in paragraph 9.1 above, teaches substantially the claimed features with the exception that the cleaning layer of Terada does not contain polyimide resin. Namikawa, the secondary reference, which is an analogous art, however, teaches the equivalency of

the cleaning layer of Terada with polyimide, hence, as stated in paragraph 9.1 above, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have substituted the cleaning layer comprising (meth)acrylic acid of Terada with a cleaning layer comprising polyimide resin because the substitution of art recognized equivalents as shown by Namikawa is within the level of ordinary skill in the art. In addition, simple substitution of one known element for another would achieve the predictable result of providing an effective cleaning layer which causes no contamination on the conveying site. And while Terada measures the amount of silicone attached to the cleaning layer when the release film is peeled off the cleaning layer, which is  $0.005 \text{ g/m}^2$  or less, as calculated in terms of polydimethylsiloxane, whereas, the Appellant, as seen in the present claims, measures the amount of silicone attached to the cleaning layer when the release film is peeled off the cleaning layer, using a different parameter, which is the relative intensities of the recited fragment ions being 0.1 or less, according to the recited ion mass spectrometry, both Terada and Appellant desire no contamination of the cleaning layer from the silicone-based releasing agent of the release film (releasable protective film) when the release film is peeled off the cleaning layer. Thus, the cleaning layer of Terada and the Appellant, after the release film is peeled off the cleaning layer, contains no, or very minimal amount of silicone-based contaminants. Therefore, even though the test measurements performed by Terada and the Appellant are different, it would have been obvious to one of ordinary skill in the art at the time the invention was made to reasonably expect the amount of silicone-based releasing agent attached to the cleaning layer when the release film is

peeled off said cleaning layer of Terada to be equivalent to those recited, absent a showing of unexpected results.

With respect to the argument that Namikawa does not disclose an Example of a cleaning layer comprising polyimide resin, please note that a reference is not limited to the working examples, see *In re Fracalossi*, 215 USPQ 569 (CCPA 1982). In addition, non-preferred embodiments can be indicative of obviousness, see *Merck & Co. v. Biocraft Laboratories Inc.* 10 USPQ 2d 1843 (Fed. Cir. 1989); *In re Lamberti*, 192 USPQ 278 (CCPA 1976); *In re Kohler*, 177 USPQ 399.

B. With respect to the obviousness-type double patenting rejection over US 7,575,790 in view of Namikawa, Appellant traverses the rejection for the reasons set forth above.

The response above applies here as well. The obviousness-type double patenting rejection is maintained until such time Appellant submits a timely filed terminal disclaimer.

#### **(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Lorna M Douyon/

Primary Examiner, Art Unit 1761

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/Harold Y Pyon/

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Attachment:

(1) IDS dated 03/03/2011